



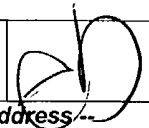
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,284	02/26/2002	Roy Martin	S01364/70033 PCL	4144
37462	7590	04/19/2004	EXAMINER	
LOWRIE, LANDO & ANASTASI RIVERFRONT OFFICE ONE MAIN STREET, ELEVENTH FLOOR CAMBRIDGE, MA 02142			LAWRENCE JR, FRANK M	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/083,284	MARTIN, ROY	
	Examiner	Art Unit	
	Frank M. Lawrence	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 31-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Allowable Subject Matter***

1. The indicated allowability of claim 27 (now canceled) is withdrawn in view of the newly discovered reference(s) to Jackson (5,236,602). Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 31, 32, 36-38, 41-43 and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson (5,236,602).
4. Jackson '602 teaches a system for reducing hydrocarbon contaminants in a source of wastewater, comprising a stainless steel vessel (30) for receiving contaminated water through an inlet (34), a second inlet (44) for introducing a source of reactive media that can include ultrapure water and oxygen, ozone or hydrogen peroxide, a source of radiation (36) having a wavelength in the range of 185 and 254 nm for producing hydroxyl radicals for reacting with the contaminants, a mixer (42), and an outlet (48) for discharging treated water (figure 2, col. 5, lines 36-59, col. 6, line 61 to col. 7, line 59, col. 8, lines 16-29, col. 9, line 59 to col. 10, line 23).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson '602 in view of JP '542.

7. Jackson '602 discloses all of the limitations of the claims except that the surface of the channel is reflective to UV. JP '542 discloses a system for producing hydroxyl radicals in a bath tub water source, comprising a conduit diverting water from the tub, a UV source for irradiating water in the conduit, a reflector (61), and a stainless steel cover (3) (see abstract, figures 5, 6). It would have been obvious to one having ordinary skill in the art at the time of the invention to use a reflective conduit surface in order to provide a means for amplifying UV radiation by reflecting UV rays directed away from the water source back to the source.

8. Claims 34, 35, 46-48 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson '602 in view of Gonzalez-Martin et al. '912.

9. Jackson '602 discloses all of the limitations of the claims except that a wall of the channel comprises titanium or that the channel surface is coated with titanium dioxide to promote free radical production. Gonzalez-Martin et al. '912 disclose a photocatalytic reactor for producing hydroxyl radicals from a water or water/peroxide mixture, comprising a channel including a substrate wall (14) surrounding a UV radiation source and a titanium dioxide coating on the substrate wall (figures 1, 1a, 2, col. 1, lines 38-48, col. 2, lines 20-29, col. 5, line 33 to col. 6, line 23). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Jackson '602 by using a titanium dioxide coating in order

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provide a device that further promotes the production of hydroxyl free radicals for contaminant oxidation.

10. Claims 39, 40, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson '602 in view of Schulte et al. '665.

11. Jackson '602 discloses all of the limitations of the except that the produced solution has a strength of at least about 0.1% as active hydrogen peroxide and that the pH is lowered to less than about 9. Schulte et al. '665 disclose a water/UV/hydrogen peroxide system for producing hydroxyl radicals for water oxidation, wherein the pH in the treated solution is adjusted using acids or bases to a range of 8-11 for example, and the amount of peroxide can be easily determined by one skilled in the art in an orienting test (col. 1, lines 8-18, col. 4, lines 28-49). Absent a showing of criticality or unexpected results, the treatment pH and level of hydrogen peroxide are parameters that would have been routinely optimized by one having ordinary skill in the art at the time of the invention based on the desired level of hydroxyl donor that is necessary for the purification application and on the nature of the contaminant to produce optimum process conditions.

### ***Response to Arguments***

12. Applicant's arguments with respect to claims 31-52 have been considered but are moot in view of the new ground(s) of rejection. Note that this rejection is not based on claims that have been amended to present any issue that was not considered before the issuance of this office action, therefor the action is NON-final.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frank M. Lawrence  
Primary Examiner  
Art Unit 1724

*Frank Lawrence*

4-13-04